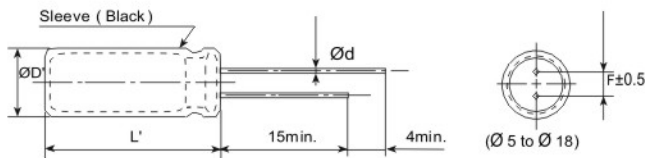# HP SERIES

● Standard Bi-polarized series
● Endurance: +105℃ 1,000 hours
● RoHS Compliant

◆SPECIFICATIONS

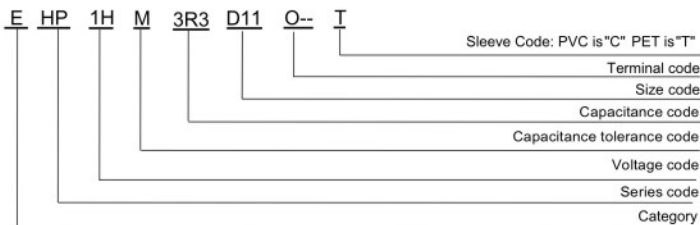| Items	Characteristics
Category Temperature Range	-40 to +105℃
Rated Voltage Range	6.3 to 100Vdc
Capacitance Tolerance	±20%(M) (at 20℃, 120Hz)
Leakage Current	I≤0.06CV or 10μA whichever is greater (at 20℃ after 2 minutes) I≤0.03CV or 3μA whichever is greater (at 20℃ after 5 minutes) Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)

Dissipation Factor (tanδ)	Rated voltage	6.3	10	16	25	35	50	63	100	(at 20℃, 120Hz)
	tanδ (Max.)	0.24	0.24	0.20	0.20	0.16	0.14	0.12	0.10	
	When nominal capacitance exceeds 1,000 uF, add 0.02 to the value above for each 1,000 uF increase.									

Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage	6.3	10	16	25	35	50	63	100	(at 120Hz)
	Z(-25℃)/Z(+20℃)	4	3	2						
	Z(-40℃)/Z(+20℃)	10	8	6	4	3				

Endurance	The following specification shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 105℃, However the polarization shall be reversed every 250 hours
	Capacitance change — ≤±20% of the initial value
	D.F. (tanδ) — ≤150% of the initial specified value
	Leakage current — ≤The initial specified value
Shelf Life	The following specification shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃, without voltage applied
	Capacitance change — ≤±20% of the initial value
	D.F. (tanδ) — ≤150% of the initial specified value
	Leakage current — ≤200% The initial specified value

◆DIMENSIONS [mm]

ØD	5	6.3	8		10	12.5	16	18
Ød	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5		5.0	5.0	7.5	7.5
ØD'	ØD+0.5max.							
L'	L+2max.							

◆PART NUMBERING SYSTEM

E HP 1H M 3R3 D11 O-- T

Sleeve Code: PVC is "C" PET is "T"
Terminal code
Size code
Capacitance code
Capacitance tolerance code
Voltage code
Series code
Category

※Sleeve Code and Terminal Code should follow the part number system

HP SERIES

◆ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Case size ØDx L(mm)	tanδ	Ripple current (Arms/105℃,120Hz)
6.3(0J)	33	5×11	0.24	45
	47	5×11	0.24	54
	100	6.3×11	0.24	90
	220	8×11.5	0.24	150
	330	8×11.5	0.24	185
	470	10×12.5	0.24	260
	1000	10×20	0.24	460
	2200	12.5×25	0.26	820
	3300	16×25	0.28	1110
	4700	16×31.5	0.30	1430
	6800	18×35.5	0.34	1830
10(1A)	22	5×11	0.24	37
	33	5×11	0.24	45
	47	5×11	0.24	54
	100	6.3×11	0.24	90
	220	8×11.5	0.24	150
	330	10×16	0.24	240
	470	10×16	0.24	290
	1000	12.5×20	0.24	510
	2200	16×25	0.26	910
	3300	16×31.5	0.28	1200
	4700	18×35.5	0.30	1520
16(1C)	10	5×11	0.20	27
	22	5×11	0.20	40
	33	5×11	0.20	49
	47	6.3×11	0.20	67
	100	8×11.5	0.20	110
	220	10×12.5	0.20	195
	330	10×16	0.20	265
	470	10×20	0.20	345
	1000	12.5×25	0.20	605
	2200	16×31.5	0.22	1070
	3300	18×35.5	0.24	1400
25(1E)	10	5×11	0.20	27
	22	5×11	0.20	46
	33	6.3×11	0.20	56
	47	6.3×11	0.20	67
	100	8×11.5	0.20	110
	220	10×16	0.20	215
	330	12.5×20	0.20	320
	470	12.5×20	0.20	380
	1000	16×25	0.20	670
	2200	18×35.5	0.22	1140
35(1V)	4.7	5×11	0.16	21
	10	5×11	0.16	30
	22	6.3×11	0.16	51
	33	8×11.5	0.16	72
	47	8×11.5	0.16	86
	100	10×16	0.16	160

WV (Vdc)	Cap (µF)	Case size ØDx L(mm)	tanδ	Ripple current (Arms/105℃,120Hz)
35(1V)	220	12.5×20	016	290
	330	12.5×20	0.16	350
	470	12.5×25	0.16	465
	1000	16×31.5	0.16	805
50(1H)	0.47	5×11	0.14	7.0
	1.0	5×11	0.14	10
	2.2	5×11	0.14	15
	3.3	5×11	0.14	18
	4.7	5×11	0.14	22
	10	6.3×11	0.14	37
	22	8×11.5	0.14	63
	33	8×11.5	0.14	77
	47	10×12.5	0.14	105
	100	10×20	0.14	190
	220	12.5×25	0.14	340
	330	16×25	0.14	460
	470	16×31.5	0.14	590
63(1J)	3.3	5×11	0.12	20
	4.7	6.3×11	0.12	24
	10	6.3×11	0.12	40
	22	8×11.5	0.12	68
	33	10×12.5	0.12	98
	47	10×16	0.12	130
	100	12.5×20	0.12	225
	220	16×25	0.12	405
	330	16×31.5	0.12	535
	470	18×35.5	0.12	680
80(1B)	2.2	5×11	0.12	16
	3.3	6.3×11	0.12	23
	4.7	6.3×11	0.12	27
	10	8×11.5	0.12	46
	22	10×16	0.12	89
	33	10×16	0.12	105
	47	10×20	0.12	140
	100	12.5×25	0.12	245
	220	16×31.5	0.12	435
	330	18×35.5	0.12	570
100(1K)	0.47	5×11	0.10	8.0
	1.0	5×11	0.10	12
	2.2	6.3×11	0.10	20
	3.3	6.3×11	0.10	25
	4.7	6.3×11	0.10	30
	10	8×11.5	0.10	50
	22	10×16	0.10	97
	33	12.5×20	0.10	140
	47	12.5×20	0.10	170
	100	16×25	0.10	300
	220	18×35.5	0.10	510